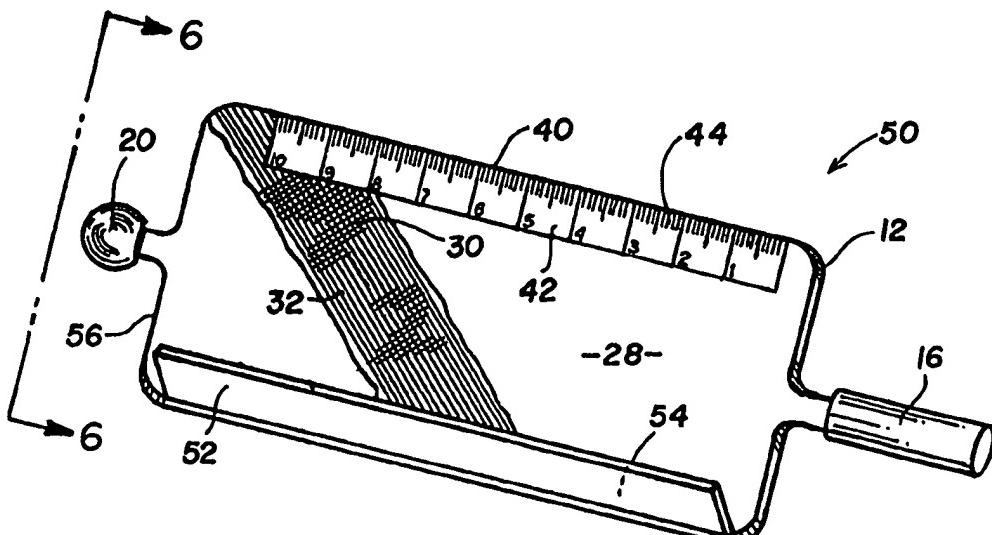




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A01L 11/00		A1	(11) International Publication Number: WO 99/30558 (43) International Publication Date: 24 June 1999 (24.06.99)
<p>(21) International Application Number: PCT/US98/26135</p> <p>(22) International Filing Date: 9 December 1998 (09.12.98)</p> <p>(30) Priority Data: 08/990,280 15 December 1997 (15.12.97) US</p> <p>(71)(72) Applicant and Inventor: BEHNEY, Charles, A. [US/US]; Box 4337, Bisbee, AZ 85603 (US).</p> <p>(74) Agent: DURANDO, Antonio, R.; 2929 E. Broadway Boulevard, Tucson, AZ 85716 (US).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	

(54) Title: FARRIER TOOL WITH RASP AND MEASURE



(57) Abstract

A substantially rectangular tool (10) has a flat body, approximately 12 inches long and 6 inches wide, with a rasp surface (24) on one side and a file surface (30) on the other. The rasp portion of the tool includes a stop (34) located near one of its narrower ends for abutting against the side wall of the hoof (H) of a horse. This stop is provided as a reference and alignment point to measure the width of the hoof. The file portion on the other side of the tool includes measure markings (44) for determining the width of the hoof being filed with reference to the stop. Two handles are provided, a longer one (16) for pushing the tool and a shorter one (20) for controlling its position through each cutting stroke. A filing shoulder (52) perpendicular to the cutting plane of the rasp may be provided for trimming the side walls of the hoof.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

FARRIER TOOL WITH RASP AND MEASURE

BACKGROUND OF THE INVENTION

5 Field of the Invention

The invention relates generally to farrier rasps and, in particular, to a rasp including means for measuring a hoof width to determine the appropriate size of horse shoe to be used.

10

Description of the Prior Art

Horses need periodic shoeing to protect their hooves and prevent damage to their feet. Typically, the wear and tear on the shoe and the normal growth and expansion of the hoof require filing, trimming and reshoeing every six to eight weeks. Therefore, the process of replacing old shoes and reconditioning hooves is a significant part of the upkeep of a horse and an important aspect of a farrier's work.

20

In order to replace a horse's shoe, a farrier is required to lift each foot several times to carry out the various steps involved in the process. First the old shoe is extracted; then the hoof is filed down to remove the old, distal horn material and provide a structurally sound anchor for shoe nails; then the width of the hoof is measured for fitting; and finally a new shoe is nailed or otherwise attached to the hoof. Each step involves picking up and holding the foot of the horse between the legs of the farrier such that the hoof faces up and its bottom and side walls are accessible to perform the particular work required. Each step must be carried out for each foot of the horse, which is time consuming and adds to the cost of horse shoeing. Moreover, since rasps in current use are only about two inches wide, it is extremely difficult for farriers to produce a level hoof without "eye-balling" and constantly checking the shoe to

make sure there are no gaps between the hoof wall and the shoe that might cause the shoe to rock on the hoof.

A particular problem that results from the procedure just described is the fact that farriers often skip the measuring step for three of the four hooves and use the first measurement for all fittings, assuming that the hooves of all four feet are the same. In fact, though, that is normally not the case and the shoe has to be bent to conform to the particular hoof to which it is being attached. Thus, instead of using a shoe of a different size, as available in commerce for obtaining an optimal fit, this shortcut is often taken to save time and provide a less expensive service. Unfortunately, though, this practice introduces stresses in the hoof that can affect the integrity of its structure and the life of the fit.

Therefore, any improvement in the procedure and tools used in horse shoeing that simplified the process would be welcome by farriers. This invention is directed at providing a tool that makes it possible for a farrier to obtain the advantages of the described shortcut without its negative consequences.

25

SUMMARY OF THE INVENTION

It is an object of the invention to provide a farrier rasp that includes means for measuring the width of a horse's hoof at the same time the hoof is being filed and shaped for shoeing, thereby avoiding the necessity for the additional step of lifting the foot of the horse to measure it with a different instrument after filing.

35 Another object of the invention is to provide a rasp tool that is appropriately sized to cover the entire width of a hoof of a variety of horses, thereby facilitating the flat

filling of the hoof with single uniform strokes affecting both sides of the hoof without interference with the sole and frog of the foot.

- 5 An additional object of the invention is a farrier's tool including rasp and file portions for coarse and fine aspects of horn reduction, as necessary to shape the hoof of a horse for optimal fitting with a shoe.
- 10 A further object of the invention is a rasp portion and a file portion with cutting edges arranged at an optimal angle with respect to the structure of the tool so that maximum efficiency is obtained while filing a hoof that is completely covered by the cutting surface, thereby
- 15 producing a uniform flat surface in a single operation.

According to one embodiment of the invention, the tool includes an additional cutting surface substantially perpendicular to the rasp surface for trimming the side walls of the hoof.

Therefore, according to these and other objectives, the present invention consists of a substantially rectangular tool having a flat body, approximately 12 inches long and 25 6 inches wide, with a rasp surface on one side and a file surface on the other. The rasp portion of the tool includes a stop located near one of its narrower ends for abutting against a side wall of the hoof of a horse. This stop is provided as a reference and alignment point to 30 measure the width of the hoof. The file portion on the other side of the tool includes measure markings for determining the width of the hoof being filed with reference to the stop. Both rasp and file portions have cutting edges placed at about 45 degrees with respect to 35 the longitudinal axis of the tool. Two handles, a longer one for pushing the tool and a shorter one for controlling its position through each cutting stroke, are provided at

each longitudinal end. In an alternative embodiment of the invention, a filing shoulder perpendicular to the cutting plane of the rasp is provided for trimming the side walls of the hoof.

5

Various other purposes and advantages of the invention will become clear from its description in the specification that follows and from the novel features particularly pointed out in the appended claims.

10 Therefore, to the accomplishment of the objectives described above, this invention consists of the features hereinafter illustrated in the drawings, fully described in the detailed description of the preferred embodiments and particularly pointed out in the claims. However, such 15 drawings and description disclose only some of the various ways in which the invention may be practiced.

BRIEF DESCRIPTION OF THE DRAWINGS

20

Fig. 1 is a perspective view of one embodiment of a farrier tool in accordance with the invention showing the rasp side of the tool.

25

Fig. 2 is a perspective view of the embodiment of a farrier tool of Fig. 1 showing the measure and file side of the tool.

Fig. 3 is a side view of the tool of Fig. 1.

30

Fig. 4 is a plan view of the tool of Fig. 1 illustrating its use in measuring the width of a hoof butting against the stop of the invention.

35

Fig. 5 is a perspective view of another embodiment of a farrier tool in accordance with the invention showing the file side of the tool.

Fig. 6 is a view of the tool of Fig. 5 as seen from line 6-6 in that figure.

5

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, wherein like numerals and symbols are used throughout to denote like parts, Fig. 1 is a perspective view of a farrier tool 10 in accordance 10 with the invention. The tool 10 consists of a substantially rectangular, rigid plate 12 with two opposite flat sides suitable for incorporating an abrasive body, such as provided by file or rasp cutting surfaces. As normally defined and understood in the art, a file 15 consists of a cutting surface having ridges or teeth formed by crosscuts at some regular spacing that extend across the face of the surface, typically at an angle with respect to the cutting direction of the surface. A rasp is normally understood to refer to a file structure with 20 individual protruding points or teeth for coarser cutting and trimming. Therefore, the terms file and rasp are used here as understood in the art, without limitation, referring in general to relatively finer and coarser cutting ability, respectively.

25

The plate 12 includes a proximal tang 14 for connection with a preferably elongated proximal handle 16; and a distal tang 18 for connection with a preferably rounded distal handle 20. Both handles are preferably disposed 30 along the longitudinal axis of the tool 10. One side 22 of the tool 10 comprises a rasp surface 24 distributed substantially throughout the side 22 of the plate 12 (only a portion of the rasp surface 24 is shown in the drawings for convenience). The teeth of the rasp provide cutting 35 edges 26 disposed facing forward at approximately 45 degrees with respect to the main axis of the tool 10. The other side 28 of the plate 12, illustrated in Fig. 2,

comprises a file surface 30 similarly distributed substantially throughout the surface of the side 28 (again, only a portion of the file surface 30 is shown for convenience). The ridges of the rasp provide cutting edges 32 also disposed facing forward at approximately 45 degrees with respect to the main axis of the tool 10.

As better seen in the side view of Fig. 3, the rasp side 22 of the tool 10 also includes a stop 34 consisting of a rigid structure having a surface 36 substantially perpendicular to the rasp surface 24. The stop 34 is preferably located near the proximal end 38 of the plate 12, positioned approximately in parallel to it, and reaching one of the edges 40 of the plate 12. The file side 28 of the tool 10 includes a linear measure 42 with visible markings 44 corresponding to linear units of measurement. The measure 42 is positioned along the same edge 40 opposite to the stop 34, such that the markings 44 correspond to linear distances from the surface 35 of the stop 34 on the other side of the tool. Thus, the measure 42 can be used to measure the width of a hoof H protruding from the side 40 of the tool 10 and aligned by having a side wall W leaning against the surface 36 of the stop 34, as illustrated in Fig. 4 (wherein the hidden portion of the hoof H is shown in phantom line). As seen in the figure, for example, assuming that the markings in the measure 42 correspond to inches, the hoof H would be found to measure approximately 6.5 inches.

The preferred size of the plate 12 is about 12 inches long and about 6 inches wide, a size found to be sufficient to cover entirely the hoof of any horse. This complete coverage is important to ensure uniform abrasion over the entire surface of the hoof at each stroke during filing, which is very desirable in preparation of the hoof for shoeing. By having the cutting edges 26 and 32 of the rasp and file surfaces at a 45-degree angle with respect

to the longitudinal axis of the tool (measured clockwise, as described), a hoof can be efficiently filed by pushing the tool 10 forward from right to left at about that same angle with respect to the front of the user. This is the 5 normal stroke used by a right-handed person during a filing operation, where the right hand is used to push the proximal handle 16 and the left hand to control the tool through the distal handle 20. Therefore, when the tool of the invention is intended for a left-handed user, the 10 cutting edges 26 and 32 of the rasp and file surfaces should be positioned at a 45-degree angle measured counterclockwise from the longitudinal axis of the tool, so that the same advantage can be obtained by pushing the tool forward from left to right.

15

In order to use the tool, the hoof of a horse is lifted and rapped between the legs of a farrier facing away from the leg of the horse, as usual. The hoof is first coarsely filed down using the rasp surface 24, and then 20 finely filed to a uniform flat configuration using the file surface 30. After the hoof is shaped as desired, the combination of the stop 34 and measure 42 is used to measure the precise width of the hoof being shod. Then the appropriate shoe is nailed or otherwise attached to 25 the hoof. The process is repeated for each hoof, thereby ensuring that each is fitted with the correct size of shoe.

In another embodiment 50 of the invention shown in Fig. 5, 30 the tool is also equipped with a vertical shoulder 52 having an abrasive inside surface 54 for filing the side walls W of the hoof. The shoulder 52 is preferably placed on the file side 28 of the tool 50, such that it can be used to trim the walls during the finer filing operation. 35 The shoulder 52 is advantageously placed on the edge of the side 28 providing the most beneficial use to a user. Since most users would tend to carry out the trimming of

the hoof wall with their dominant hand, the shoulder 52 is preferably placed such that in use it is on the side of that hand with respect to the proximal handle 16. Fig. 6 illustrates the tool 50 designed primarily for a right-hand user as seen from its distal end 56.

The preferred material for manufacturing the tool of the invention is steel or an alloy of the type normally used to make files, rasps and other tools with an abrasive surface. Various modifications can be made by one skilled in the art within the meaning and range of equivalence of the appended claims. For example, the placement of the various functional components 24, 30, 34, 42 and 52 can be varied, so long as the working relationship between them is maintained. Similarly, the invention is described for use by a farrier for shoeing a horse, but it can be advantageously used with any hoofed mammal in equivalent fashion.

Various other changes in the details, steps and materials that have been described may be made by those skilled in the art within the principles and scope of the invention herein illustrated and defined in the appended claims. Thus, while the present invention has been shown and described herein in what is believed to be the most practical and preferred embodiments, it is recognized that departures can be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent apparatus and methods.

I Claim:

1. A farrier tool comprising:
a rigid plate having opposite first and second
5 substantially flat sides;
a rasp surface incorporated into the first flat side;
a linear measure incorporated into the second flat
side; and means for aligning an object, such as a
hoof of a horse, with said linear measure such that a
10 dimension of the object can be determined from the
measure.
2. The tool of Claim 1, wherein said rasp surface has
rasp cutting edges placed at about 45 degrees with respect
15 to a longitudinal axis of the tool.
3. The tool of Claim 1, further comprising a proximal
handle and a distal handle substantially disposed along a
longitudinal axis of the tool.
20
4. The tool of Claim 1, wherein said means for aligning
an object with said linear measure consists of a stop in
said first flat side.
- 25 5. The tool of Claim 1, further comprising a file
surface incorporated into the second flat side.
6. The tool of Claim 5, wherein said rasp surface has
rasp cutting edges placed at about 45 degrees with respect
30 to a longitudinal axis of the tool, and said file surface
has file cutting edges placed at about 45 degrees with
respect to said longitudinal axis.
7. The tool of Claim 2, wherein said means for aligning
35 an object with said linear measure consists of a stop in
said first flat side.

10

8. The tool of Claim 3, wherein said means for aligning an object with said linear measure consists of a stop in said first flat side.
- 5 9. The tool of Claim 5, wherein said means for aligning an object with said linear measure consists of a stop in said first flat side.
10. The tool of Claim 6, wherein said means for aligning 10 an object with said linear measure consists of a stop in said first flat side.
11. The tool of Claim 10, further comprising a proximal handle and a distal handle disposed along a longitudinal 15 axis of the tool.
12. The tool of Claim 1, further comprising abrasive means for trimming a side wall of a hoof.
- 20 13. The tool of Claim 12, wherein said abrasive means consists of a shoulder structure having an abrasive surface substantially perpendicular to the rigid plate of the tool.
- 25 14. The tool of Claim 12, wherein said rasp surface has rasp cutting edges placed at about 45 degrees with respect to a longitudinal axis of the tool.
15. The tool of Claim 12, further comprising a proximal 30 handle and a distal handle disposed along a longitudinal axis of the tool.
16. The tool of Claim 12, wherein said means for aligning an object with said linear measure consists of a stop in 35 said first flat side.
17. The tool of Claim 12, further comprising a file

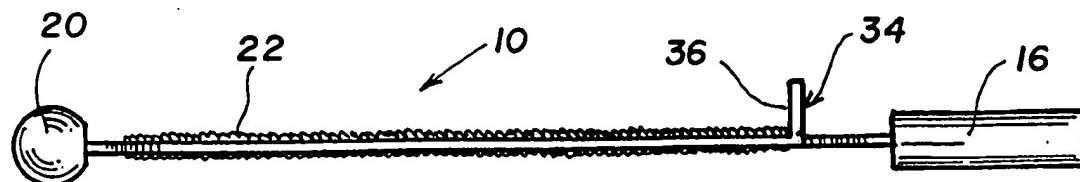
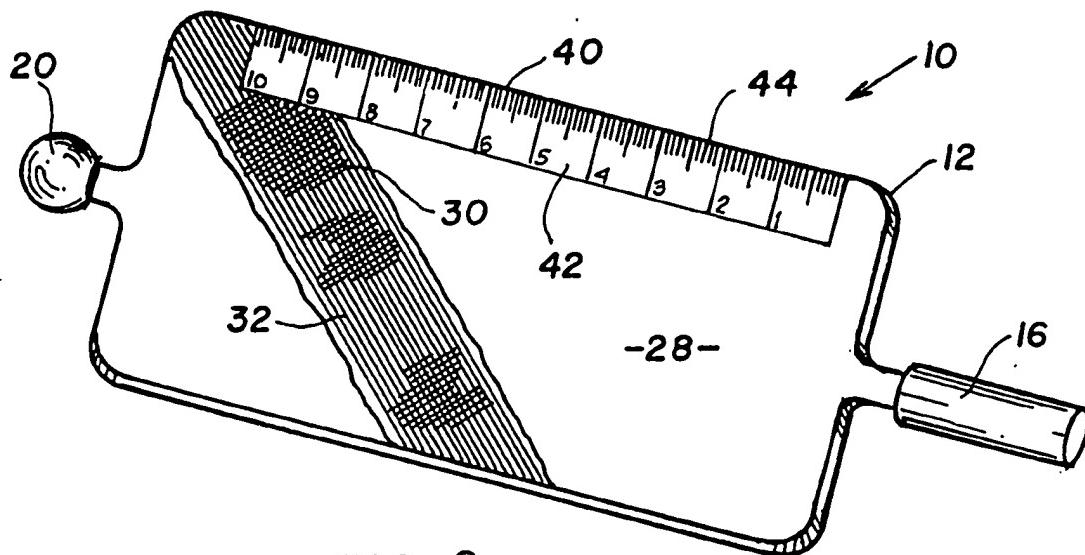
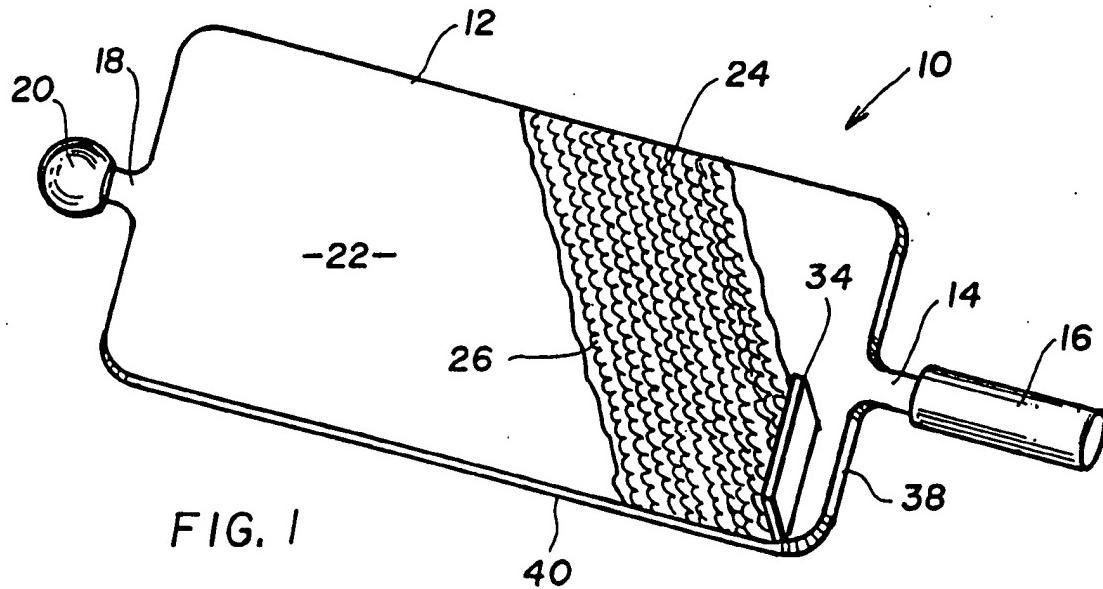
surface incorporated into the second flat side.

18. The tool of Claim 17, wherein said rasp surface has rasp cutting edges placed at about 45 degrees with respect to a longitudinal axis of the tool, and said file surface has file cutting edges placed at about 45 degrees with respect to said longitudinal axis.

19. The tool of Claim 18, wherein said means for aligning an object with said linear measure consists of a stop in said first flat side.

20. The tool of Claim 19, wherein said flat plate is approximately 12 inches long and approximately 6 inches wide.

1/2



2/2

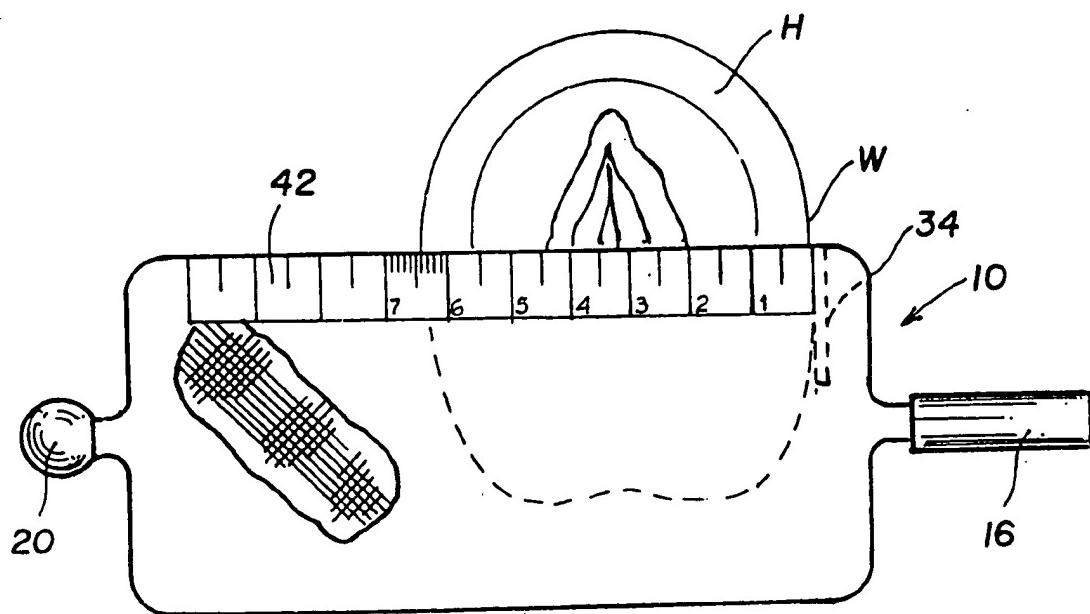


FIG. 4

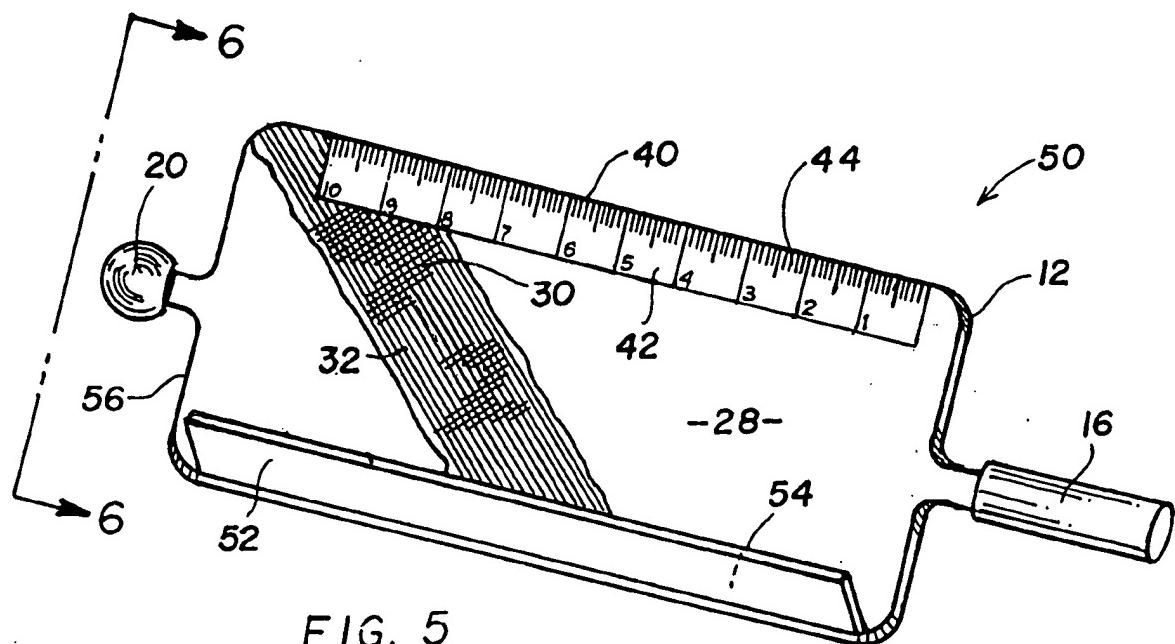


FIG. 5

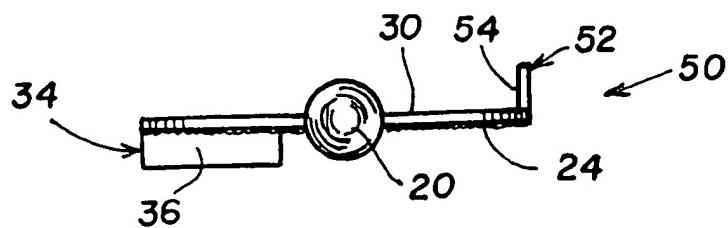


FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/26135

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A01L 11/00
US CL : 168/45

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 168/45, 48.1; 407/29.1, 29.15; 7/164

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 1,840,135 A (SCHUTT) 05 January 1932 (05.01.32), page 1, lines 59-84.	1-4, 7, 8, 12, 14-16
A	US 633,523 A (LYTLE) 19 September 1899 (19.09.99), see the entire document.	1-20
A	US 853,495 A (BROWN) 14 May 1907 (14.05.07), page 2, lines 19-24.	1-20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Z"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

23 APRIL 1999

Date of mailing of the international search report

14 MAY 1999

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3230

Authorized officer

ROBERT P. SWIATEK

Telephone No. 703/308-2700